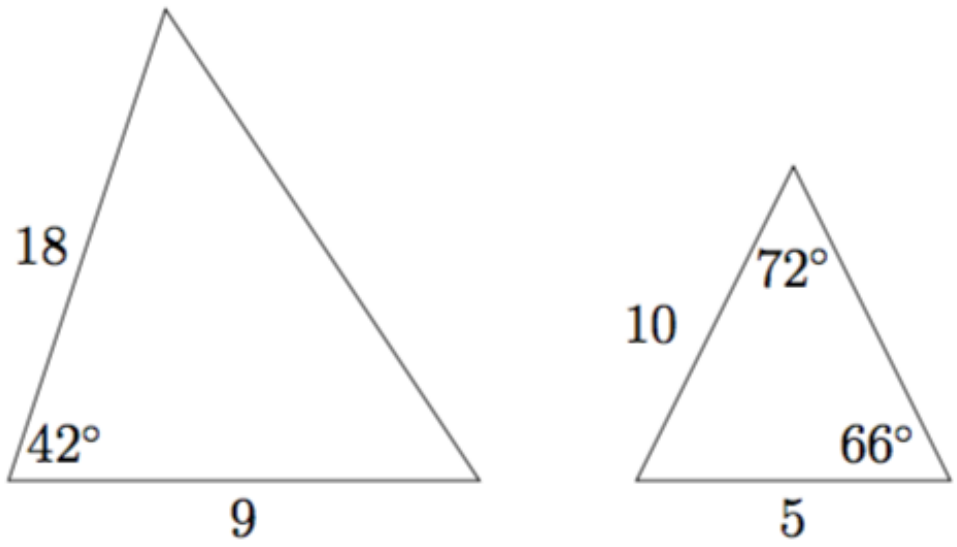
**Topic**: Triangle similarity statements

**Question**: Can the two triangles in the figure be proven similar? Which similarity reason would be correct? The figure is not drawn to scale.




**Answer choices**:

A Yes, by AA

B Yes, by SAS

C Yes, by SSS

D No, they can't be proven similar.

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**Solution**: B

One pair of corresponding sides is

$$\frac{10}{18} = \frac{5}{9}$$

A second pair of corresponding sides is also $5/9$. Therefore, two pairs of corresponding sides are proportional.

The third angle of the small triangle can be calculated as

$$180^\circ - 66^\circ - 72^\circ = 42^\circ$$

That matches the angle in the large triangle, so we have a pair of corresponding congruent angles included between the pairs of proportional sides.

The two triangles are similar by SAS.

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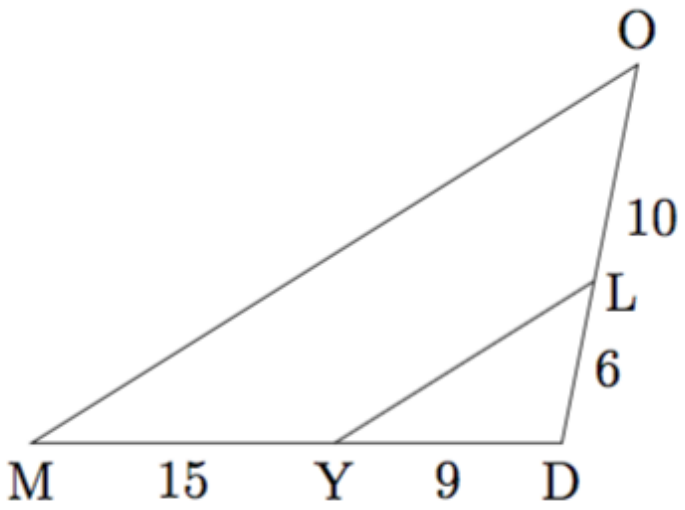
**Topic**: Triangle similarity statements

**Question**: Can the two triangles in the figure be proven similar? Which statement of similarity and reason would be correct?




**Answer choices**:

A $\Delta ODM \sim \Delta LDY$ by SAS

B $\Delta OMD \sim \Delta DLY$ by SAS

C $\Delta DOM \sim \Delta DLY$ by SSS

D None of these

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**Solution**: A

We can say

$$\frac{YD}{MD} = \frac{9}{24} = \frac{3}{8}$$

and

$$\frac{LD}{OD} = \frac{6}{16} = \frac{3}{8}$$

Therefore, two pairs of corresponding sides are proportional. $\angle D$ is in both triangles and by the reflexive property $\angle D \cong \angle D$.

The two triangles are similar by SAS.

Answer choice A shows SAS and the correct corresponding ordering of vertices.

Answer choice B shows SAS, but the wrong order of vertices. If you write $\Delta OMD$ for the big triangle, you need to write $\Delta LYD$ for the small triangle.

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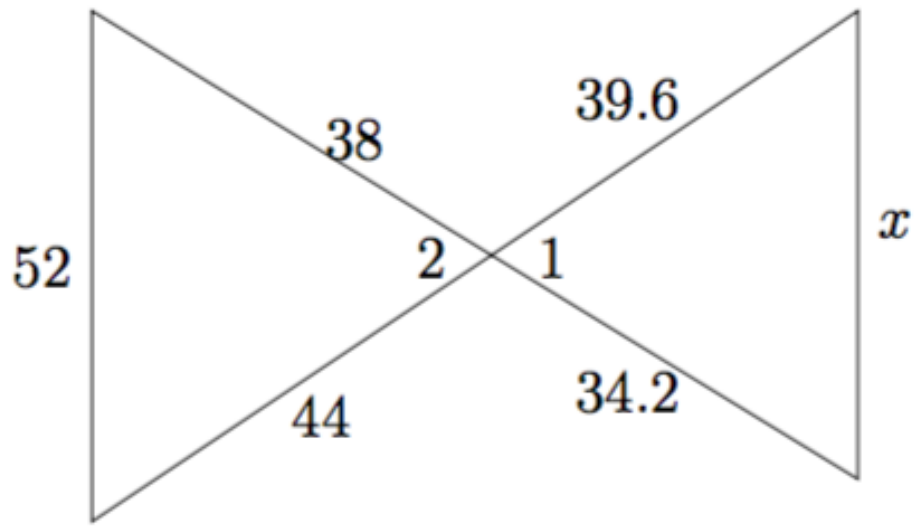
**Topic**: Triangle similarity statements

**Question**: Solve for the variable.




**Answer choices:**

A 44.2

B 48.4

C 46.8

D Impossible to determine

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**Solution**: C

We can say

$$\frac{39.6}{44} = 0.9$$

and

$$\frac{34.2}{38} = 0.9$$

Therefore, two pairs of corresponding sides are proportional. $\angle 1 \cong \angle 2$ because vertical angles are congruent.

The two triangles are similar by SAS.

Now that we know the two triangles are similar, we can say

$$\frac{x}{52} = 0.9$$

$$x = 52 \cdot 0.9 = 46.8$$

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